1.—THE FAUNA OF ROTTNEST ISLAND X.

ANTHURIDAE.

By

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Communicated by Mr. K. Sheard.

A sequence of papers on the fauna of Rottnest Island has appeared in the Journal of this Society. The majority of the specimens were collected by Mr. Glauert, curator of Perth Museum. He kindly made available to the author his collection of Anthuridae. These were collected at different times but from one locality—Bathurst Point, Rottnest Island.

THE COLLECTION.

Sixty-nine specimens were in the collection, including representatives of five species, two of which have been recorded previously from Australian waters. The other three are described here as new species, one of which is assigned to a new genus. Only one species of Anthurid has previously been recorded from West Australian waters (Thomson 1946).

ECOLOGICAL NOTES.

As these five species of a circumscribed group were all collected in the same locality it is of interest to note that two of the species (both of the genus *Mesanthura*) had the normal type of mouth-parts ; the other three had the mouth parts adapted for sucking.

A number of species of Anthurids have been recorded from the deserted tubes of worms, or in the canals of sponges ; and it has been asserted by various authorities that the Anthuridae do not construct tubes. Barnard (1925) says : " So far as is known Anthurides have no means of constructing dwellings of their own, like certain amphipods, unless they hollow out galleries with their mandibles." It is of considerable interest therefore to record that Mr. Glauert has observed a tube built by one of the species recorded here. A number of Anthurids were kept alive for a period in a vessel which had some debris in the bottom. When the contents were inspected, Mr. Glauert observed that a tube much like those of some amphipoda had been constructed between a stone and the wall of the jar. Unfortunately in handling the vessel the stone was moved, thus tearing the tube and expelling the occupant. As there were several species present, it is impossible to say to which species the builder belonged.

SYSTEMATIC.

The Revision of the family by Barnard (1925) has been used as a basis for classification. Subsequent publications dealing with members of the group have been consulted.

Order ISOPODA

Sub-order FLABELLIFERA

Fam. **ANTHURIDAE.**

1. **Accalathura gigas** (Whitelegge) 1901.

Calathura gigas Whitelegge 1901.
C. sladeni Stebbing 1910.
A. gigas Barnard 1925.

The specimens in the collection have only weakly pigmented eyes, and the area covered by the eye seems to be somewhat variable. Whitelegge's original specimens were described as having "eyes indistinguishable, destitute of pigment". Stebbing's *sladeni* and Barnard's South Australian specimens had pigmented eyes ; also these, as with the specimens here recorded, were much smaller than the *gigas* specimens, although they included ovigerous females. Barnard, however, dismisses size of mature individuals as a specific criterion as considerable variation in this respect is shown by other species. Unfortunately Barnard was unable to view Whitelegge's types whose description was inadequate in some particulars ; but basing his judgment on the published work, he was unable to find any other differences between *gigas*, *sladeni* and the South Australian specimens.

The individuals from Rottnest could not be distinguished from the three previous descriptions. However, the male stylet has not been described previously. As displayed on the Rottnest specimens it is rather similar to that figured by Barnard for *Accalathura crenulata*, except that a translucent membrane joins the lower portions of the two terminal arms, (text fig. 1).

Text fig. 1—*Accalathura gigas*.

Ovigerous females had about 36 ova or young attached.

14 specimens :

♀ (with young) 1.8 cm.. ♂ 2 cm. 1.2 cm. December, 1929.
♀ ovigerous 1.7 cm. 1.8 cm.. ♂ 1.9 cm. ; 1.3 cm.. Imm. 0.9 cm. 0.8 cm. February, 1930.
♂ 1.9 cm. ? 1931.
♀ ovigerous 1.55 cm. February, 1931.
♀ ovigerous 1.8 cm., 1.7 cm.. ♂ 1.2 cm. ? 1932.

2. **Paranthura punctata** (Stimpson) 1855.

Anthura punctata Stimpson 1855.
Paranthura costana Thomson 1882 (non Bate and Westwood).
P. nigropunctata Chilton 1906 (non Lucas).

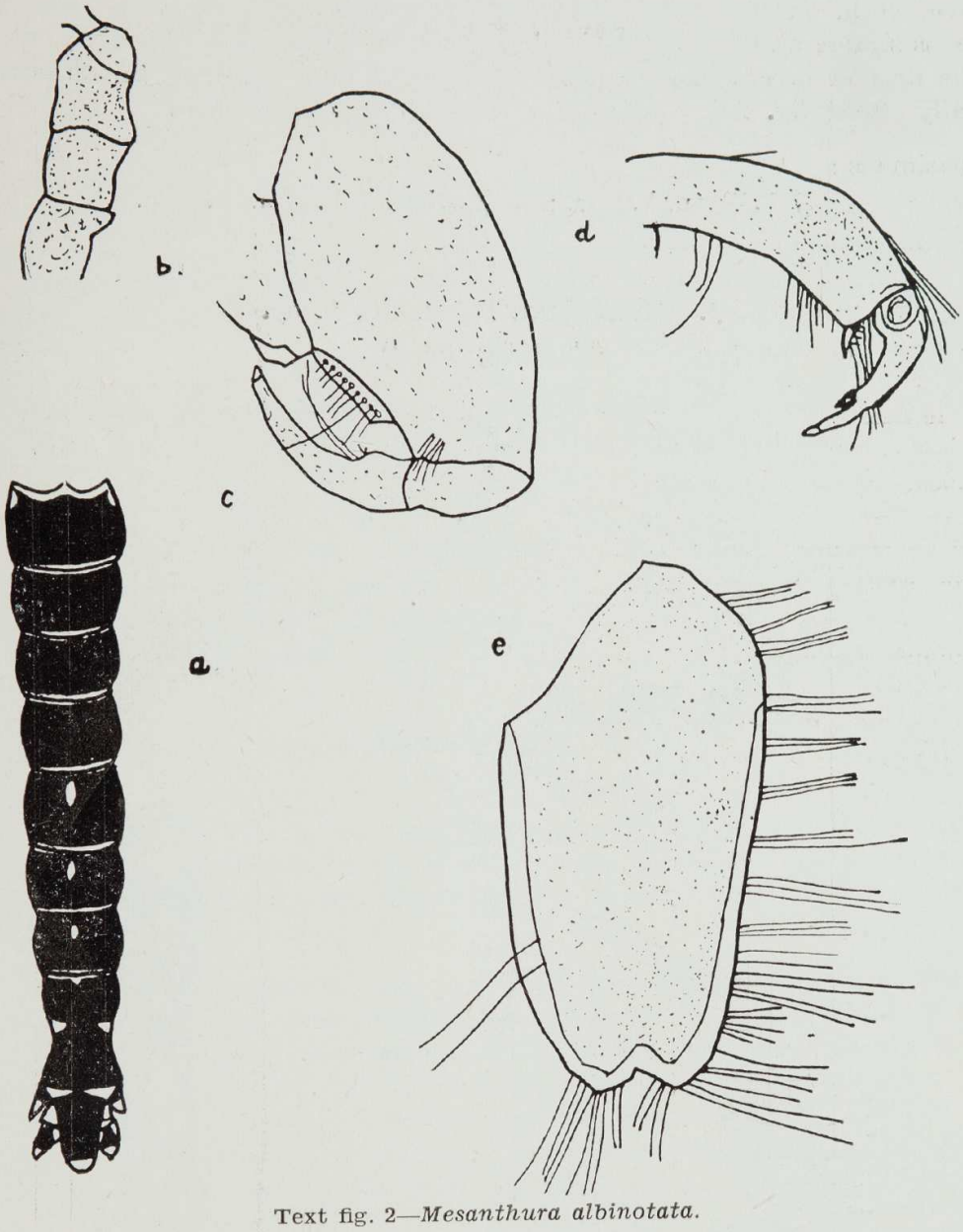
This species has already been described from specimens taken in New Zealand, New South Wales, Tasmania, South Australia and South Africa.

10 specimens :

♀ ovigerous 1·95 cm. ♀ 1·85 cm. ♂ 1·45 cm., 1·1 cm.
Imm. 0·9 cm. ? 1931.
Imm. 1·2 cm., 1·2 cm., 1·15 cm. 1·0 cm.
(10982/86)
from Cymodoce Cottesloe.

3. **Mesanthura albinotata** n. sp.

(Text fig. 2a–e)



Text fig. 2—*Mesanthura albinotata.*

The principal characteristic used as a specific criterion in this genus is the pigment pattern. Indeed descriptions of some of the species are lacking in details of the anatomy.

M. albinotata has a pattern which differs only a little from that of *M. maculata* (Haswell) in the extent of the tergum that it covers. But it differs in having small oval pigment-free patches anteriorly on segments, 4, 5 and 6 of the peraeon, and on segment 7 is an unpigmented notch medianly at the anterior end of the pigment patch (text fig. 2a).

The mandibular palp is not markedly strong in proportion to the trunk ; in which point the species differs from *M. catenula* (Stimpson) but agrees with the other species of the genus whose palp has been described. The maxilliped is 5-segmented but the third joint is only feebly indented to form a " waist " (text fig. 2b) whereas this indentation is marked in other species of *Mesanthura*. The propodus of pereiopod 1 is ovate, the palm being ex-

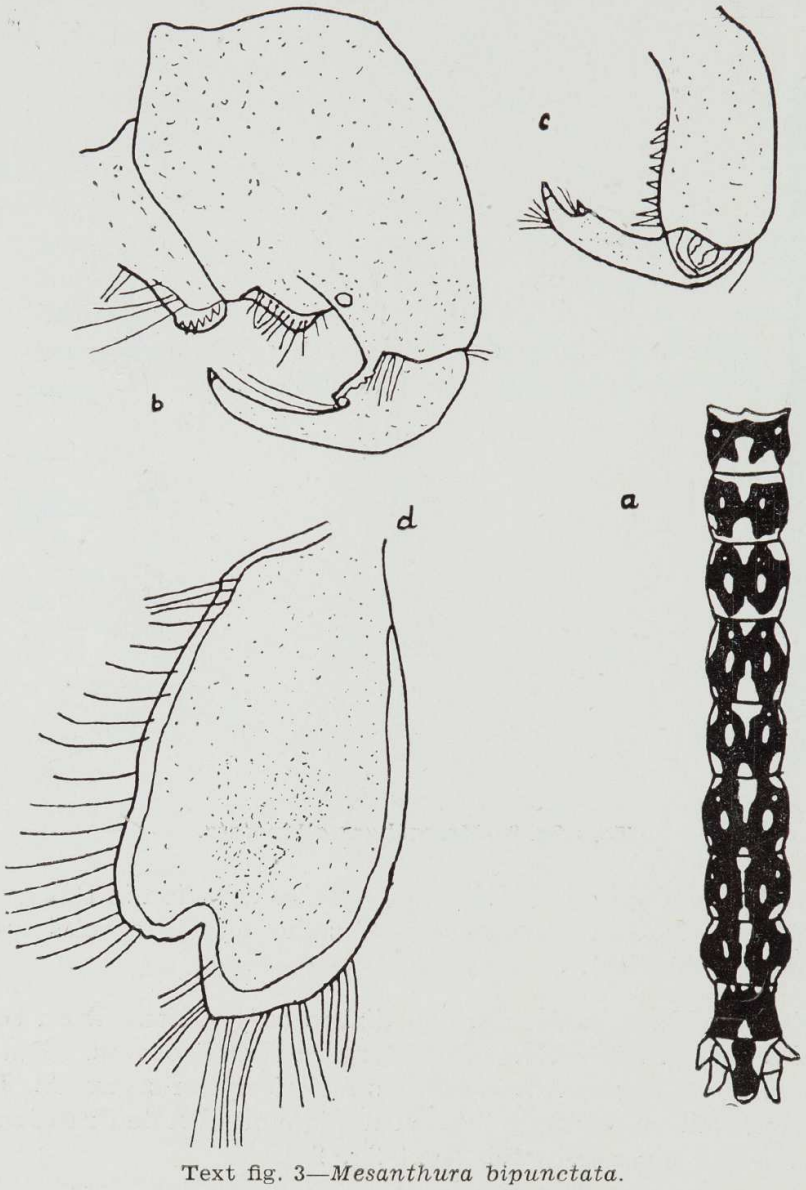
cavate distally, whereas the proximal portion is straight and bears a row of nine setae (text fig. 2c). Pereiopod 2 has a spine, which bears a comb of four or five teeth, on the distal end of the propodus (text fig. 2d). The male stylet is simple and rod-shaped. The telson is not sinuate laterally ; exopod of the uropod tapers more or less evenly from near the base but is notched apically (text fig. 2e). Females with five large eggs each.

4 specimens :

♂ 1.45 cm., 1.0 cm. ; ♀ ovigerous 1.6 cm., 0.6 cm.

4. **Mesanthura bipunctata** n. sp.

(Text fig. 3a–d)



Text fig. 3—*Mesanthura bipunctata.*

The pigment pattern of this species is quite distinctive (text fig. 3a). On each peraeon segment there is formed a pair of oval patches free from pigment. Besides these there are two smaller antero-lateral circles. The pigment area is almost separated medianly by a central unpigmented channel, but a bar of pigment prevents complete partition. This connecting pigmented

area is further back in position on succeeding peraeon segments except on segment 7, where it is somewhat further forward as compared with segment 6.

A ring of pigment runs down from the tergum under the insertions of pereiopods 2 and 3. In the hinder peraeon segments this ring is broken into a tongue of pigment in front of and below the pereiopods. The anterior edge of the basipodite of pereiopod 1 bears a pigmented patch.

The mandibles and maxillipeds are much as in *M. albinotata* except that the " waist " on the third joint of the maxilliped is more marked. The propodus of pereiopod 1 is ovate with a proximo-dorsal knob (text fig. 3b). The palm is distally excavate, and proximally it is somewhat bulbous, and bears a curving row of 11 setae. The distal spine on this propodus is smooth. (text fig. 3c).

The exopod of the uropod is somewhat expanded and broad compared with that of *M. albinotata* (text fig. 3d.) It is notched apically.

8 specimens.

♂ 1.05 cm., 1.05 cm. December, 1929.
♂ 0.9 cm., 0.4 cm., 0.65 cm.
♀ ? imm. 1.5 cm. February, 1931.
♂ 1.6 cm. January, 1937.

5. **Aenigmathura lactanea,** n. gen. n. sp.

(Text fig. 4a–k)

Eyes poorly developed, weakly pigmented, though usually discernible. As other species in the same tubes have heavy pigment in the eyes, the poor pigmentation is presumably representative of the living condition and not an effect of storage in spirit.

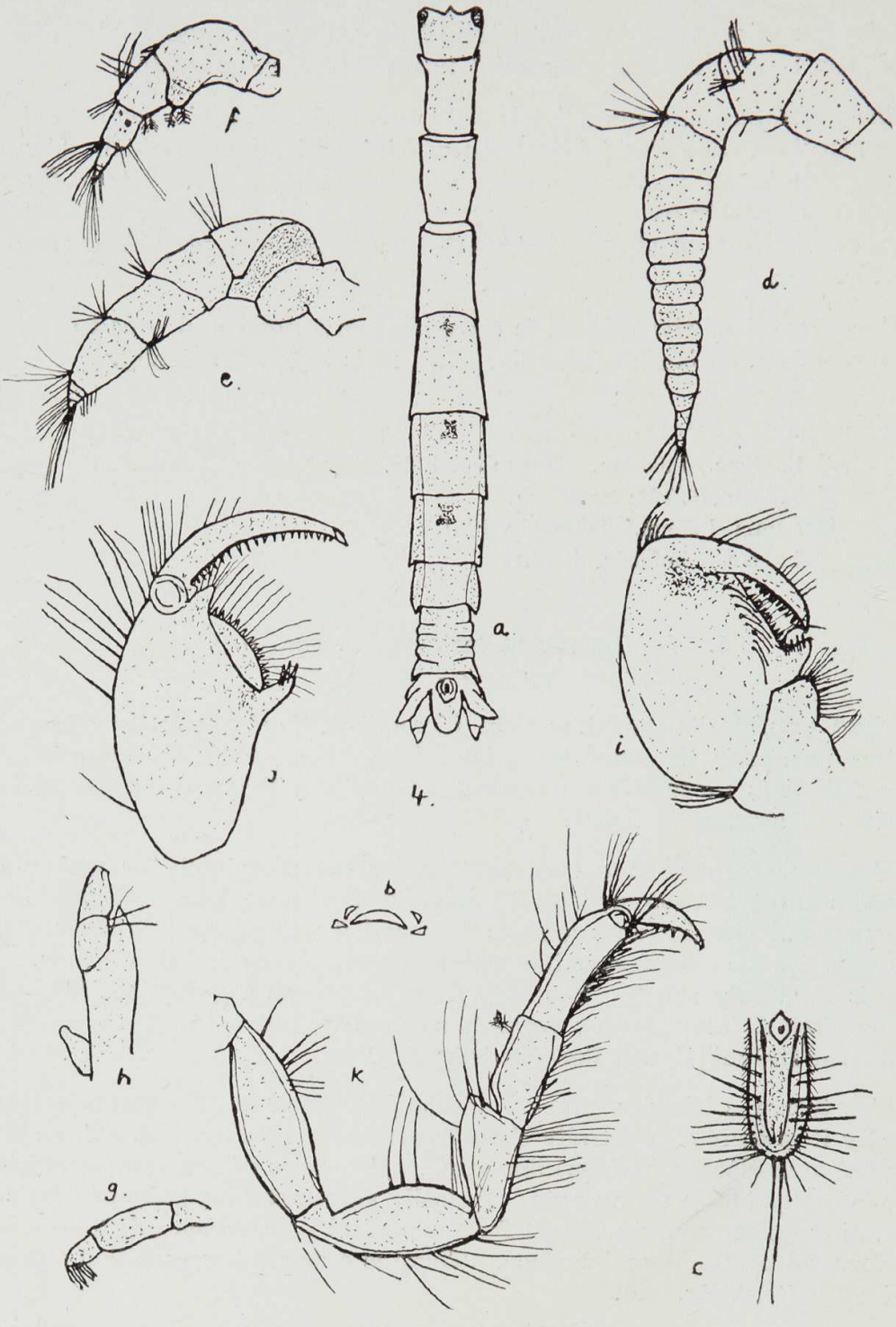
The peraeon segments bear scattered setae marginally on either side. Segments 4 to 7 have dorso-lateral keels and these are slight. Shallow dorsal pits occur anteriorally on segments 4, 5 and 6. Segment 7 is shorter than the other peraeon segments but not so markedly as in *Accalathura*. The pleon is relatively short—about the same length as segment 6. The pleon sutures distinct laterally but variably so dorsally, where they are never discernible in the mid-dorsal line (text fig. 4a).

The telson is broadly rounded and slightly less than the pleon in length. Dorsally it is convex, ventrally slightly concave (text fig. 4b). The margin is smooth and clothed in dense fine setae. Two rows of longer setae originate dorso-laterally inside the margin. Apically there are four pairs of long setae originating on the margin except for the central pair, which originate a little way forward on the dorsal surface. There is a single large median statocyst proximally (text fig. 4c).

Antenna I swollen in the male (text fig. 4d.) and of about 18 joints. In the female it is normal and the flagellum is four to five jointed (text fig. 4e). Antenna II has a flagellum of three or four joints in both sexes (text fig. 4f). There is a groove overhung by an expansion in the basal segment in which antenna I normally lies.

The mandibular palp (text fig. 4g) has the first and third joints subequal and the third joint bears a comb of setae. The second joint is markedly larger than the others.

The maxilliped (text fig. 4h) is 4-jointed ; the second joint is prolonged distally reaching barely beyond the base of the fourth joint.



Text fig. 4—*Aenigmathura lactanea.*

Pereiopods 1-3 are sub-chelate with a basal tooth to each palm. Pereiopod 1 has a convexly arched palm in the female and young males, but almost straight in the adult male (text fig. 4i). There is a row of spinules along the unguis, the palm and the basal tooth, and on either side a row of long setae laterally to the palm, and a long seta at the distal base of the basal tooth.

Pereiopods 2 and 3 have convex palms strongly arched in the female—less so or almost straight in the male. The female has a small distal tooth on the palm of pereiopods 2 and 3 (text fig. 4j) but this structure is represented in the male only by a very slight swelling. The spines on the basal tooth of pereiopods 2 and 3 are much stouter in the female than in the male.

Pereiopods 4 to 7 have rather short and stout joints, the fifth of which very slightly under-rides the 6th (text fig. 4k).

Pleopod 1 is somewhat indurated but not strongly operculiform. Pleopods broad and squat. The inner ramus of pleopod 1 only half as broad as the outer—in the remaining pleopods the inner ramus is at least three-quarters as broad as the outer. The male stylet is a simple rod.

There is no marked inner projection on the base of the uropod which is lined with long ciliate setae on the outer side and the distal half of the inner margin. The exopod is very slightly arched over the telson and both it and the endopod with the base of the uropod are somewhat splayed—forming an open cu-shaped tail fan. The endopod of the uropod is less than half the length of the base, and projects slightly beyond the end of the telson. Its margin is lined with non-ciliate setae—those on the inner margin being only half as long as those on the outer. The female has four pairs of oostegites—which enclose about 36 ova. No pigment could be discerned apart from the faint darkening of the eyes. The preserved specimens are creamy in colour.

In many respects, the genus is intermediate between *Accalathura* Barnard and *Leptanthura* Sass.

As in the *Accalathura*, the maxilliped is 4-jointed. The prolongation of the second joint reaches nearly to the distal end of the fourth in *Accalathura*, whereas in *Aenignathura* it projects scarcely beyond the base of segment four. In these two genera also the third joint of the mandibular palp is subequal to the first. But the second joint is not much larger than the others in the case of *Accalathura* whereas this joint is markedly elongated in *Aenigmathura*. Although *Accalathura* has the basal tooth or lobe at the base of the palm of pereiopod 1 it lacks the similar teeth which *Aenigmathura* has on pereiopods 2 and 3.

The swollen first antenna of the male is common to *Aenigmathura* and *Leptanthura* but not to *Accalathura* ; but in *Leptanthura* it is densely clothed in short setae ; whereas the specimens of *Aenigmathura* have the swollen flagellar portion almost bare. The flagellum of the female first antenna is not so rudimentary in *Aenigmathura* as in *Leptanthura* as at least three and sometimes four joints can definitely be made out.

The flagellum of the second antenna, the feeble eyes, the large statocyst, the elongate second joint of the mandibular palp and the under-riding of segment 6 by segment 5 in pereiopods 4-7 and the relative sizes of the telson to the pleon are common to *Aenigmathura* and *Leptanthura*. But another difference occurs in the third joint of the mandibular palp which has a comb of setae in *Aenigmathura* but none in *Leptanthura*. A most important difference is the presence of a 3-jointed maxilliped in *Leptanthura*. It is 4-jointed in *Aenigmathura*.

33 specimens.

♂ 2.0 cm., 1.8 cm., 1.8 cm., 1.7 cm., 1.7 cm., 0.9 cm. ♀ ovigerous 1.8 cm., 1.4 cm., 1.2 cm. ♀ 1.1 cm., 0.9 cm. December, 1929.

♀ 1.6 cm., 1.45 cm., 1.45 cm., 1.4 cm. January, 1930.

♂ 1.3 cm., 0.5 cm. ♀ 0.7 cm. February, 1930.

♂ 1.3 cm., 1.1 cm. ♀ ovigerous 2.0 cm., 1.5 cm.

♀ 1.7 cm. Imm. 1.3 cm., 1.1 cm., 1.1 cm., 0.55 cm., 0.3 cm. February, 1931.

♀ 1.8 cm.—16062/05.

♂ 1.2 cm. ♀ ovigerous 1.6 cm. ♀ 1.5 cm., 1.3 cm. January, 1937.

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